



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,157	03/19/2004	Nischal Abrol	030389	8635
23596 7590 04/29/2009 QUALCOMM INCORPORATED 5775 MOREHOUSE DR. SAN DIEGO, CA 92121				
EXAMINER				
NGUYEN, KHAI N				
ART UNIT		PAPER NUMBER		
2614				
NOTIFICATION DATE		DELIVERY MODE		
04/29/2009		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

us-docketing@qualcomm.com

kascanla@qualcomm.com

nanm@qualcomm.com

Office Action Summary

Application No.

10/805,157

Applicant(s)

ABROL ET AL.

Examiner

KHAI N. NGUYEN

Art Unit

2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 2, 4, 5, 9, 15-34, 37 and 39-50 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 5, 9, 15-34, 37 and 39-50 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

Applicants' amendment filed January 15, 2009 has been entered. Claims 1-2, 4-5, 9, 15-16, 18-19, 21, 22, 25-27, 28, 30-32, 33, 34, 37, and 39 have been amended. Claims 3, 6-8, 10-14, 35-36 and 38 have been cancelled. Claims 40-50 have been added. Claims 1-2, 4-5, 9, 15-34, 37, and 39-50 are still pending in this application, with claims 1, 15, 22, 28, 33, 34, 37, 39, 48, 49, and 50 being Independent claims.

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. The amended claims and the new added claims 1, 9, 22, 33, 37, 39, 48, and 50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1, 9, 22, 33, 37, 39, 48, and 50 recite the acronyms TCP/IP and PDSN that need to be spelled out in the claims to avoid any possible confusion now and in the

future for acronyms may refer to different items or objects. Appropriate correction is required.

4. The new added claim 50 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 50 is rejected under 35 U.S.C. § 112, second paragraph as being vague and indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 50 is drawn toward a "software module embodied in a storage medium" - - -, but the claim recites "the method comprising: - - -", and there in no method's steps/features related to a method in this claim. Therefore, it cannot be concluded with a complete assurance that claim 50 is a method or a product/manufacturing claim. Appropriate correction is required.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The new added claims 48-50 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The new added claims 48-50 are claimed for "A software module embodied in a storage medium", and therefore

these claims did not fall within at least one of the four enumerated categories of patentable subject matter recited in section 101 (i.e., process, machine, manufacture, or composition of matter). Claims 48-50 are drawn toward "A software module embodied in a storage medium - - -". These claims are non-statutory as being directed to a software module/computer program per se. Software instructions or code, or a mere program listing are nonstatutory subject matter.

In addition, these claims failed to describe the storage medium encoded with instructions that can be executed by a computer. The storage medium encoded with computer executable instructions define the structural and functional interrelationships between the instruction/software and hardware components which permit software/instructions' functionality to be realized, and is thus statutory (i.e., "a software module embodied in a storage medium" cannot be ensured that the software module is executable by a computer).

Claim Rejections - 35 USC § 102

6. Claims 1-2, 4-5, 9, 15-19, 22-32, 37, and 39-50 are rejected under 35 U.S.C. 102(e) as being anticipated by Sen et al (U.S. Patent Number 6,765,909 hereinafter "Sen").

Regarding claims 1, 22, and 48, Sen teaches an apparatus, a method (Figs. 1-6), and a software module embodied in a storage medium (column 7, lines 52-65, i.e., computer usable mediums include: nonvolatile, read-only-memory (ROM), etc.) for

efficiently processing a Van Jacobson (VJ) compressed data packet/Internet Protocol (IP) packet incoming to a mobile station, comprising:

a receiver, at a mobile station tethered to a terminal equipment (Fig. 1, User(s) 102, 110, column 4, lines 15-16, i.e., a wire-line device reads on "terminal equipment", and a wireless communications device reads on "mobile station") and operable to provide the terminal equipment with access to a wireless network, for receiving an IP packet having a TCP/IP header (Fig. 1, 104, 106 Internet, 108, column 4, lines 6-14, i.e., a wireless network with equipment connected to the IP network), wherein the TCP/IP header comprises a Van Jacobson (VJ) compressed header comprising a connection identification (Fig. 3, TCP/IP header with VJ compressed header, column 2, lines 35-39, i.e. point-to-point protocol (PPP) supports Van Jacobson (VJ) header compression, and column 5, lines 15-17, i.e., TCP/IP compressed header) corresponding to one of the terminal equipment, or the mobile station, or a site associated with a PDSN (Fig. 2, 202, 204 Packet Data Service Node (PDSN), Radio Access Network) in communication with the mobile station via the wireless network (Figs. 1-3, column 4, lines 27-32);

a storage (Fig. 4, 406 Classifier), communicatively associated with said receiver, for storing a list (Fig. 3, column 6, lines 1-2, i.e., a table of pre-determined connection numbers reads on "a list"), wherein the list comprises at least one VJ connection identification (Fig. 3, 304 Connection Number), wherein the at least one VJ connection identification identifies at least one of a first source having an active TCP/IP session with an active application on the mobile station, or a first destination corresponding to

the active application on the mobile station, or a second source or a second destination both not corresponding to the active application on the mobile station (Figs. 3-4, column 5, line 43 through column 6, line 3, i.e., maintains a table "a list" of pre-determined connection numbers "connection identification" and the TCP/IP application associated with each connection number); and

a comparator (Fig. 3, Fig. 4, 406 Classifier, Fig. 5, Comparing Pseudo-code) for comparing the connection identification of the IP packet with the at least one VJ connection identification in the list and forwarding the IP packet, without decompressing the IP packet (Fig. 5, UNCOMPRESSED_TCP), to the intended destination if the comparing determines that the connection identification does not correspond to the active application on the mobile station, and forwarding the IP packet, with decompressing the IP packet (Fig. 5, COMPRESSED_TCP), to the intended destination if the comparing determines that the connection identification corresponds to the active application on the mobile station (Figs. 3-5, column 5, lines 14-42, and column 6, lines 7-38).

Regarding claim 2, Sen teaches an apparatus, wherein said comparator (Fig. 3, Fig. 4, 406 Classifier, Fig. 5, Comparing Pseudo-code) forwards the IP packet, without decompressing the IP packet, if the connection identification of the IP packet matches the at least one VJ connection identification identifying either of the second source or the second destination (Figs. 3-5, column 5, lines 29-42).

Regarding claims 4-5, and 25, Sen teaches an apparatus, a method (Figs. 1-6), wherein the at least one VJ connection information stored in the list indicates an active destination at the mobile station, and at the terminal equipment associated with the mobile station (Fig. 4, 406, column 6, lines 1-2, i.e., a table of pre-determined connection numbers and the TCP/IP application associated with each connection number).

Regarding claims 9 and 26, Sen teaches an apparatus, a method, wherein the at least one VJ connection information stored in the list indicates an active originator of a communication between the mobile station (Fig. 2, 215 Base Transceiver Station (BTS), 202, 204 Packet Data Service Node (PDSN)) and remote equipment corresponding to the site associated with the PDSN (Fig. 2, column 4, lines 27-32).

Regarding claims 15, 28, and 49, Sen teaches a filter and a method (Figs. 1-6), and a software module embodied in a storage medium (column 7, lines 52-65, i.e., computer usable mediums include: nonvolatile, read-only-memory (ROM), etc.) for efficiently processing/filtering data packet incoming to a mobile station, comprising:

a receiver (Fig. 2, 215 Base Transceiver Station (BTS), 218 Receiving Device, Fig. 6, step 602 Packet Received into Classifier) for receiving IP data packets and Van Jacobson (V J) uncompressed data packets (Fig. 2, Fig. 6, column 6, lines 46-58); and
a delineator (Fig. 2, Fig. 6) for identifying the IP data packets from the VJ uncompressed data packets, wherein said delineator identifies a connection

identification in at least one of the VJ uncompressed packets (Fig. 6, steps 604-605, column 7, lines 3-13, i.e., IP Header Compression (IPHC)) as destined for the mobile station, and wherein said delineator forwards the connection identification to a connection identification list for use by the delineator in subsequently assessing a destination of VJ compressed packets associated with the at least one of VJ uncompressed packets (Fig. 2, Fig. 6, steps 602-608, column 6, line 60 through column 7, line 20, i.e., includes Van Jacobson's TCP/IP header compression and RTP/UDP/IP header compression, and wherein a known connection number reads on "identifies a connection identification").

Regarding claims 16 and 30, Sen teaches a filter and a method, wherein, upon identification by said delineator of an IP packet destined for the mobile station, said delineator seeks a received connection identification in a subsequent one of the VJ uncompressed packets (Figs. 4-5, column 6, lines 23-25, i.e., checks the connection number "connection identification").

Regarding claims 17-19, and 31-32, Sen teaches a filter and a method (Figs. 1-6), further comprising a tether to at least one terminal equipment communicatively associated with said delineator (Fig. 1, 102, 106, Fig. 6, column 4, lines 15-18, i.e., devices include wire-line, wireless, computing, fax, voice and virtually any IP compatible device), wherein for ones of the VJ uncompressed packets not identified as destined for the mobile station, the delineator forwards the ones to the terminal equipment, and

wherein the delineator forwards ones of the IP packets not identified as destined for the mobile station to the terminal equipment (Fig. 6, step 604-605, column 6, lines 59-64, i.e., Voice over IP packets to mobile station and TCP data packets to terminal equipment).

Regarding claims 23-24, 27, and 29, Sen teaches a method (Figs. 1-6), further comprising: alternatively uncompressing the VJ compressed data packet locally to the received connection identifier, wherein said uncompressing is local at the mobile station, wherein said uncompressing is local at the terminal equipment associated with the mobile station, and subsequently assessing a destination of at least one VJ compressed packet associated with the one of the VJ uncompressed packets in accordance with the connection identification list (Fig. 3, Fig. 4, 402 TCP/IP Header Compression Layer, column 5, line 59 through column 6, line 3, and column 7, lines 3-14, i.e., IP Header Compression (IPHC) protocol).

Regarding claims 37, 39, and 50, Sen teaches an apparatus, a method (Figs. 1-6), and a software module embodied in a storage medium (column 7, lines 52-65, i.e., computer usable mediums include: nonvolatile, read-only-memory (ROM), etc.) for assessing the destination of an Internet Protocol (IP) packet that has arrived at a mobile station (MS) without uncompressing a compressed header of the IP packet, comprising: maintaining a connection identification (CID) list at the MS (Fig. 3, Fig. 4, 406, column 5, line 66 through column 6, line 3, i.e., maintains a table of pre-determined

connection numbers located in a Base Station), wherein the CID list comprises CIDs corresponding to at least one of an active MS application or an active terminal equipment (TE) application on a TE tethered to the MS, wherein the MS acts as a gateway to a wireless network for applications running on either the MS or the TE (Figs 1-6, column 4, lines 15-18, and column 5, line 59 through column 6, line 45, i.e., acts as a gateway to support applications in the same session);

determining whether the IP packet has a TCP/IP packet header (Figs. 3-6, column 6, lines 39-45, i. e., differentiating between TCP/IP header compressed packets and RTP/UDP/IP header compressed packets within the same session);

determining whether the TCP/IP packet header is Van Jacobsen (V J) compressed or VJ uncompressed (Fig. 6, steps 604-606, column 7, lines 3-5, i.e., Van Jacobson's TCP/IP header compression);

if the TCP/IP packet header is VJ uncompressed, then assessing a destination from the TCP/IP header as either the MS or the TE, forwarding the IP packet to the assessed one of the MS or the TE, and adding a connection identification (CID) of the IP packet to an application CID list (Fig. 6, steps 606-608, column 7, lines 14-20);

if the TCP/IP packet header is VJ compressed, then comparing the CID of the TP packet to each CID on the application CID list (Fig. 6, step 610, column 7, lines 20-24, i. e., checking the connection number table "CID list");

if the CID of the IP packet is on the CID list and corresponds to the active MS application, then uncompressing the VJ compressed header and passing the IP packet

to the MS with the uncompressed VJ compressed header (Fig. 6, steps 606-612, column 7, lines 14-27); and

if the CID of the IP packet is not on the CID list or corresponds to the active TE application, then forwarding the IP packet to the TE without uncompressing the VJ compressed header (Fig. 6, steps 608-609, 611, column 7, lines 28-37, i.e., the connection number not known reads on the CID of the packet is not on the CID list).

Regarding claims 40-47, Sen teaches a filter, an apparatus, a snooper, a method, and a system (Figs. 1-6), wherein an IP address of the mobile station comprises a destination address for both the mobile station and the terminal equipment (Fig. 6, steps 604-606, column 6, lines 59-67, wherein a determination of whether the packet is data packet or a Voice over IP (VoIP) packet reads on the IP address of the mobile station comprises a destination address for both the mobile station "VoIP packet" and the terminal equipment "data packet").

Claim Rejections - 35 USC § 103

7. Claims 20-21, and 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sen as applied to claims 1, 15, and 22 above, and further in view of Parantainen et al. (U.S. Patent Number 7,054,268 hereinafter 'Parantainen').

Regarding claims 20-21, and 33-34, Sen discloses everything claimed as applied above (see claims 1, 15, and 22 above). However, Sen does not specifically disclose a

snooper. Although Sen teaches to maintain a table of connection numbers, and the connection number fields of TCP/IP packets utilizing Van Jacobson's header compression techniques are snooped and filtered (Figs. 1-2, Fig. 3, 304 Connection Number "Identification", Fig. 4, 402 TCP/IP Header Compression Layer, Figs. 5-6, column 3, lines 24-40, column 5, lines 14-17, column 6, lines 1-3, and column 7, lines 3-14).

In the same field of endeavor, Parantainen teaches a snooper methodology that can observe data traffic as it is being transferred, and a mobile station application that a snooper is able to observe the data packets being sent to the application, as well as the data packets being generated by the application (Fig. 12, column 20, line 59 through column 21, line 34, and Fig. 15, column 22, lines 26-54). Parantainen further teaches that there is a need for to share the uplink resources for multiple mobile stations to send delay sensitive data such as voice (see Parantainen – column 7, line 54 through column 8, line 20).

Therefore, it would have been obvious to a person of ordinary in the art at the time of the invention was made to incorporate the use of a snooper, as taught by Parantainen, into the method and system of Sen in order to enhance the applications running on a wireless communication device. Since, Sen teaches to maintain a table of connection numbers, the connection number fields of TCP/IP packets utilizing Van Jacobson's header compression techniques are snooped and filtered, and differentiating between data packets and VoIP packets, and thus adding a snooper is to apply a known technique to a known device ready for improvement to yield predictable

results (see KSR – MPEP 2143). One having ordinary skill in the art would have been motivated to make such a modification to share the uplink resources among multiple mobile stations, as per the teachings of Parantainen.

Response to Arguments

8. Applicant's arguments with respect to claims 1-2, 4-5, 9, 15-34, 37, and 39-50 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHAI N. NGUYEN whose telephone number is (571)270-3141. The examiner can normally be reached on Monday - Thursday 6:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad F. Matar can be reached on (571) 272-7488. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. N. N./
Examiner, Art Unit 2614
04/21/2009

/Rasha S AL-Aubaidi/
Primary Examiner, Art Unit 2614